

REMARKS/ARGUMENTS

Claims 1 - 24 remain in this case and are presented for reconsideration in view of the following remarks and arguments.

In the outstanding Office Action, the Examiner rejected all 24 claims under 35 USC §103(a) as being obvious over the Cox et al. U.S. patent (5,930,369) in view of the Senoh U.S. patent (6,240,121). In addition the Examiner required a new title and objected to Claim 5.

By this Response and Amendment, the title of the application has been amended, and claim 5 has been amended. However, the rejection of the claims as being obvious over the two applied references is expressly traversed and reconsideration thereof is requested.

Rejections Under 35 USC §103

The Examiner rejected independent Claims 1, 9, 15 and 20 and all of the claims respectively dependent thereon as being obvious over the Cox et al. patent (5,930,369) in view of the Senoh patent (6,240,121). No claim stands allowed or allowable. The

Examiner said with respect to Claim 1:

Regarding **claim 1**, Cox discloses a digital watermarking method and apparatus for inserting a watermark signal into audio signal data (column 1, lines 8-46 and column 2, lines 15-32), comprising:

Fourier transforming audio signal data in the frequency domain (column 6, lines 1-10 and column 9, lines 6-19;

wavelet transforming absolute values of said first components ($|w \text{ sub } I|$) to generate first spectral coefficients (inherent in selecting frequency regions; column 11, line 66 - column 12, line 12 and column 10, lines 14-16);

discrete cosine transforming (DCT) a watermark signal to generate second spectral coefficients (inherent in selecting frequency regions; column 11, line 66 - column 12, line 33 and column 10, lines 14-16); and

combining said first spectral coefficients and said second spectral coefficients (all values of $x \text{ sub } I$; column 10, lines 17-24) but lacks Fourier transforming audio signal in a form of first and second components and fails to inverse wavelet transform the combined coefficients.

Senoh discloses a digital watermarking method and apparatus for inserting a watermark signal into audio data (sounds; column 1, lines 8-12), comprising:

Fourier transforming audio signal in a form of first components and second components (column 2, lines 28-44), to obtain a signal containing watermark embedded data; and

inverse wavelet transforming (inverse wavelet transforming section; figure 1, element 31) the combined coefficients (column 6, lines 47-51), to receive signals and transfer the signals into an image with embedded watermark data.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Cox's invention such that it Fourier transforms

audio signals in a form of first and second components and inverse wavelet transforms the combined coefficients for inserting watermark data in such a manner that the watermark data cannot be easily detected and such that the watermark is hardly visible and/or audible (column 4, lines 48-56).

REMARKS

The present invention as reflected in the present claims is directed to the insertion and/or extracting a watermark signal into or from audio data. Claim 1 claims a constitution of Fourier transforming audio data to generate first and second components.

However, the Cox reference only discloses a method of transforming audio data in the frequency domain using transform methods such as the Fourier transform. The reference does not disclose using a Fourier transform to generate first and second components. Further, there is no disclosure or teaching in the Cox reference of using a wavelet transformation to generate spectral coefficients. The first spectrum coefficient of Cox reference is only an audio data transformed in the frequency domain, and is not generated by wavelet transforming the absolute value of the first components. Further, since the data discrete cosine transformed in the Cox reference is not a watermark data

but an audio data, it is submitted that the Examiner's opinion regarding the Cox patent is incorrect.

The Examiner stated that the Cox reference was inadequate, because it failed to disclose the Fourier transformation of an audio signal to first and second components and fails to disclose the inverse wavelet transformation of the combined coefficients, and cited the Senoh patent to fill this void. However, it is submitted that this reference does not disclose these features. Furthermore, the Examiner has given no reason, and the references supply no reason, why such a combination of the two patents would be obvious.

Senoh only discloses a constitution of a wavelet transforming of audio data to the frequency domain to generate an intermediate signal, not the presently claimed step of using a Fourier transformation. It also discloses embedding a watermark into a part of a generated intermediate signal, but it does not disclose a cosine transformation of a watermark signal. Thus this reference lacks Fourier transforming audio signal in a form of first and second components and fails to inverse wavelet transform the combined coefficients.

Both the Cox and the Senoh patents only disclose a constitution of generating watermark-embedded audio data by applying frequency transform and inverse transform only once. That is, they do not disclose a constitution of Fourier transforming the audio data, wavelet transforming the first component of the Fourier transformed data and then embedding the watermark, and inverse wavelet transforming and inverse Fourier transforming to form watermark-embedded audio data. In other words, since neither reference alone or in combination (even assuming that such combination is taught and is possible), discloses or suggest the constitutional characteristics of the invention recited in Claim 2 wherein watermark-embedded audio data is generated by applying two different frequency transforms and inverse transforms with regard to audio data.

Therefore it is submitted that the present invention as recited in Claim 1 is patentable over the applied combination of the Cox and Senoh patents.

Because the other independent claims of the present application, claims 9, 15 and 20, also include the foregoing constitutional characteristics of Claim 1, it is submitted that

these claims are also patentable over the combination.

It is also submitted that each of the dependent claims are patentable over the combination at least for the reasons set forth with respect to Claim 1.

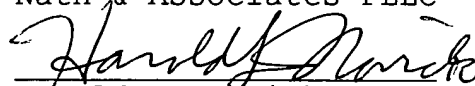
CONCLUSION

Based upon the foregoing amendments and remarks, it is submitted that the presently claimed subject matter is novel and patentably distinguished over all of the prior art of record. Thus the Examiner is therefore respectfully requested to reconsider and withdraw rejections of all claims pending herein. Favorable action with an early allowance of these claims is earnestly solicited.

The Examiner is cordially invited to telephone the undersigned attorney if there are any remaining questions or comments.

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